

Euaesthetinae and while *Alzadaesthetus* shows this feature it is the most primitive genus of the subfamily and represents yet another relict genus in the fauna of Chile.

A NOTE ON SOME INSECTS ASSOCIATED WITH
XYLOCOPIDAE IN THE EASTERN CAPE PROVINCE,
SOUTH AFRICA

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In October 1960 some dead and dying branches of seringa (*Melia azerdarach* L.), an exotic ornamental tree, containing the nests of a large and common species of xylocopid *Xylocopa* (*Mesotrichia*) *flavorufa* Degeer, were obtained from a Walmer, Port Elizabeth, garden. Adult carpenter bees were flying in and out of the holes in the branches at the time, while fresh bees continued to emerge for some weeks from the affected wood which had been placed in cages in the laboratory. At the same time a small species of chalcid was observed in the cages in thousands, as well as individuals of a pyralid moth which emerged daily from the xylocopid tunnels.

Several sections of the infested branches were opened and were found to be riddled with the ramifying tunnels and cells of the carpenter bee. Many of the cells contained living larvae and pupae in varying stages of development, while in others were found well-advanced but mummified larvae from which the chalcid had emerged or was emerging. Each of these parasitized larvae was a mass of chalcid pupae. It was obviously a case of polyembryony, as is so often found in larvae of the Phytometridae, and which this instance so closely resembled.

The chalcid parasite is described as a new species of *Girautella* (Encyritidae) by Douth and Annecke (1961). There is a considerable literature on chalcids from the nests of Xylocopidae, and it is interesting to note that polyembryonic species of Encyritidae have previously been recorded from xylocopid larvae in Java (Girault, 1919-21) and India (Mahdihassan, 1957). In the former paper there is a note by W. Roepke on these parasites which reads as follows: "Freshly emerged imagines are sometimes seen in great numbers running on the timber wherein the *Xylocopa* form galleries. They enter the holes and penetrate into the galleries till

they encounter the *Xylocopa* larvae. Some time after the parasitizing has taken place, the *Xylocopa* larvae become mummified, their colour changing into brown. The chalcids develop in enormous numbers in the body of the host."

Later, in February, nests of both *X. flavorufa* and *Xylocopa (Mesotrichia) divisa* Klug were found in the decayed portion of a wooden pergola in Port Elizabeth, and larvae of the latter species were found to be parasitized by the same or a closely related species of chalcid.

The pyralid moth, referred to above, continued to emerge from the xylocopid-infested wood until 8 December; 170 individuals were obtained from 2 November. Many of the galleries of the carpenter bee were found to be lined with tough and dense silken webbing, while equally tough and dense masses of cocoons were to be found here and there, often in the actual cells. This webbing in the form of tubes or tunnels ramified throughout many of the nests and extended to the openings or entrances. The cocoon masses consisted of bundles of the elongate cocoons placed side by side, the silk being so tough that it is virtually impossible to tear them apart. Up to at least 18 cocoons have been found in one bundle or mass.

In some of the galleries the pyralid larvae were found. The larvae is maggot-like, 13 to 14 mm in length, tapering at either end, broad, soft and yellowish, but the pronotum is darker in color and more heavily chitinized, while the head and mouth-parts are dark brown. It apparently feeds upon the bee-bread or pollen provided for the xylocopid larvae, and possibly upon the immature stages of the bee as well. Neither pollen nor bee larvae and pupae were found in cells occupied by the pyralid.

In its appearance and habits this pyralid closely resembles *Aphomia sociella* (L.), a well-known European species which lives in the nests of *Bombus* and *Vespula* species, feeding upon the honey, pollen, wax, debris, and also upon the immature stages of its hosts. At the same time it riddles the bees' nests with its silk-lined tunnels (Beirne, 1952). It has been suspected of occurring in the hives of the honeybee and has been introduced into North America where it occurs in the nests of bumblebees (Milum, 1940).

The species with which we are at present concerned was at first thought to be *A. sociella* but it has since been established

that it is a new species, and for the present can only be determined as being *Aphomia* sp. near *sociella* L. There are apparently no records of *A. sociella* in South Africa.

Both the pyralid and encyrtid, the occurrence and incidence of which have been described above, must exert a considerable controlling influence upon their xylocopid hosts.

Nests of a species of Megachilidae, in this case a true leaf-cutting bee, were also found in the same branches occupied by *X. flavorufa*. Although this megachilid nested in separate burrows or tunnels which it made in comparatively hard and sound wood, its burrow frequently connected with the xylocopid galleries, and the leaf-cutting bees apparently used the xylocopid entrance holes to gain access to their nests. The megachilid has now been determined as being a species of *Lithurgus*.

A few winged individuals of an unidentified species of ant also emerged from the galleries of *X. flavorufa*.

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